

REMARKS

Claims 1-36 are pending in the application, claims 13-26 and 28-36 stand withdrawn from consideration and claims 1-12 and 27 have been examined and stand rejected.

The specification is amended herewith, Applicants submit no new matter is added.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 1-6, 11-12 and 27 stand rejected under § 103(a) as being unpatentable over Perrin et al. (US 6,281,469) in view of Okui (JP 2001/109979). This rejection should be traversed for at least the following reasons.

Claim 1 recites, *inter alia*, "a supporter that supports said workpiece while said workpiece is separated from said discharge space to outside in the flowing direction during the jetting of the plasmatized gas".

Applicants submit Perrin fails to disclose any such supporter. Rather, in Perrin, the workpiece 4 is deposited in the discharge space 13 (FIG.13). Further, Okui fails to remedy Perrin's deficiency in this regard.

Thus, Applicants submit claim 1 is allowable for at least this reason. Additionally, because claims 4, 11 and 27 recite similar features, Applicants submit these claims are allowable for the same reasons set forth above. Additionally, Applicants submit claims 2-3, 5-6 and 12 are allowable, at least by virtue of their dependency.

No Electrodes Longer Than the Distance Between the Jet Port and the Workpiece

Additionally, claim 1 recites, *inter alia*, "a length, in the short direction, of each of the two electrode members which are arranged in substantially same positions in the extending direction

being larger than the distance between the jet port and the workpiece, a length, in the extending direction, of each of the two electrode members being further larger than the distance".

Applicants respectfully submit Perrin teaches away from these features. Specifically, Perrin discloses, in col.6, lines 20-27, "Thereby, the periodicity, i.e. the distance between two sub-sequent sub-electrodes belonging to the same group should be of the order or less than the extent of the plasma gap according to the distance PG of FIG.7. This will result in the fact that the workpiece is subjected to an "averaged" effect of the several "plasma columns" operated between respective sub-electrodes and the electrode arrangement 20 of FIG.7. ". Further, in col.9, lines 1-4 Perrin discloses, "The plasma 13 is filling the plasma gap between the electrode arrangements 10 and 20 which gap GP being somewhat larger than the distance P between two adjacent sub-electrodes 12."

Notably, the gap GP of Perrin corresponds to the distance between the jet port and the workpiece in claim 1. The distance P of Perrin is equal with the sum of the width of one sub-electrode 12 and the width of the narrow gap between two adjacent sub-electrodes 12 (FIG.13). Consequently, the distance P of Perrin may be said to correspond to the length of each of the two electrode members in claim 1. As such, because the distance P is smaller than the gap GP, the sizing relations between "the length of each of the two electrode members" and "the distance between the jet port and the workpiece" are reversed from claim 1. In this way, Perrin teaches away from "a length, in the short direction, of each of the two electrode members which are arranged in substantially same positions in the extending direction being larger than the distance

between the jet port and the workpiece, a length, in the extending direction, of each of the two electrode members being further larger than the distance,” as recited in claim 1.

Consequently, Applicants submit it would never be obvious to a person of ordinary skill in the art to modify Perrin in view of Okui as alleged by the Examiner.

Thus, Applicants submit claim 1 is allowable for this additional reason. Additionally, because claims 4, 11 and 27 recite similar features, Applicants submit these claims are allowable for the same reasons set forth above. Additionally, Applicants submit claims 2-3, 5-6 and 12 are allowable, at least by virtue of their dependency.

No Opposite Polarities

Claim 1 also recites, *inter alia*, “one of said electrode members of said first electrode row and one of said electrode members of said second electrode rows, which are arranged in substantially same positions in the extending direction, having opposite polarities and forming a row-to-row partial gap therebetween, said row-to-row partial gap serving as a part of said discharge space, one of said polarities being an electric field applying pole, the other of said polarities being a grounding pole.”

With regard to the polarities of the electrode members in claim 1, in page 12 of the Final Office Action dated Jul. 3, 2008, the Examiner alleges, “b. Applicant fails to specifically point out exactly why ‘469 fail to meet the limitation of “one of said electrode . . . being a grounding pole.” The Examiner maintains this limitation is met as presented on lines 1-7 of page 4 of the Non-Final Action (03/05/2008), for example, from col. 9, lines 1-4 and col. 6, lines 50-55 of ‘469.”.

However, in col. 6, lines 50-55, Perrin discloses, "Thereby, additionally either of the three generators may be omitted and a respective electrode arrangement connected via a respective matchbox to reference potential or by further omission of that matchbox, such electrode arrangement may directly be connected to reference potential." As such, in Perrin, one electrode arrangement 10 includes both #12A and #12B (FIG.15). When the electrode arrangement 10 is connected to reference potential, then both #12A and #12B are connected to reference potential.

On the other hand, the examiner asserts that #12A of Perrin corresponds to a first electrode row and that #12B of Perrin corresponds to a second electrode row (page 3, line 2 in the final office action dated Jul. 3, 2008). In this way, Perrin teaches in col. 6, lines 50-55 that both the first electrode row and the second electrode row may directly be connected to reference potential. However, in contrast to the Examiner's contention, Perrin never teaches "one of said electrode members of said first electrode row and one of said electrode members of said second electrode rows, which are arranged in substantially same positions in the extending direction, having opposite polarities ..., one of said polarities being an electric field applying pole, the other of said polarities being a grounding pole" in claim 1.

Thus, Applicants submit claim 1 is allowable for this additional reason. Additionally, because claims 4, 11 and 27 recite similar features, Applicants submit these claims are allowable for the same reasons set forth above. Additionally, Applicants submit claims 2-3, 5-6 and 12 are allowable, at least by virtue of their dependency.

No Elongate Electrode Members

Claim 1 also recites, *inter alia*, “a first electrode row including a plurality of electrode members each being elongate in an extending direction and short in a short direction orthogonal to the extending direction and arranged in a line in the extending direction”

Regarding the non-obviousness of the combination of “elongate” and “arranged in a line in the extending direction”, the Examiner asserts on pages 13-14 of the Final Office Action dated Jul. 3, 2008, “In regarding official notice, the examiner maintains that “it is a common knowledge to arrange electrode (or other objects) in the length-wise direction for the purpose to extend the electrode (or objects)”. ‘469 teaches the need of processing of large surface workpieces (col.2, lines 1-2). Given rectangular shape electrodes, it is a common knowledge to arrange these rectangular electrodes length-wise/extending direction in order to process large surface workpiece (‘469, col.2, lines 1-2); as opposed to arrange these rectangular electrodes width-wise/short direction which would need many more electrodes to achieve the same large surface.”.

In response, the examiner should give an explanation about why the rectangular sub-electrodes of FIG.14 of Perrin are arranged in short direction for treatment of large workpiece (col.2, lines 31-32). Compared FIG.14 with FIG.15, the length of each rectangular sub-electrode of FIG.14 is enough to treat large workpiece. In FIG.14 of Perrin, there is no need to further arrange the rectangular sub-electrodes in the extending direction for treatment of large workpiece.

Perrin teaches no more than regular polygonal sub-electrodes when sub-electrodes are arranged in two directions X and Y as disclosed in FIGS. 15, 16, 17 and 18(a). In these regular polygonal sub-electrodes, the arranged interval in X direction is equal to the arranged interval in Y direction. Perrin is thought to attempt to ensure uniformity of discharge and uniformity of treatment in two directions X, Y by means of the equal arrangements. Consequently, it would never be obvious to a person of ordinary skill in the art to arrange the rectangular electrodes in two directions X, Y because the rectangular electrodes would be difficult to arrange in this manner while the arranged interval in X direction is equal to the arranged interval in Y direction.

Moreover, Perrin discloses in col.6, lines 20-27, "Thereby, the periodicity, i.e. the distance between two sub-sequent sub-electrodes belonging to the same group should be of the order or less than the extent of the plasma gap according to the distance PG of FIG.7. This will result in the fact that the workpiece is subjected to an "averaged" effect of the several "plasma columns" operated between respective sub-electrodes and the electrode arrangement 20 of FIG.7. ". Further, Perrin discloses in col.9, lines 1-4, "The plasma 13 is filling the plasma gap between the electrode arrangements 10 and 20 which gap GP being somewhat larger than the distance P between two adjacent sub-electrodes 12." Accordingly, if the rectangular electrodes are arranged in the extending direction, the distance P of Perrin should be approximately equal to a length in the extending direction of one rectangular electrode and the gap GP of Perrin should be larger than the length in the extending direction of the rectangular electrode. In this way it would never be obvious to a person of ordinary skill in the art to arrange the rectangular electrodes in the extending direction because that entails excessively enlarging the gap GP in Perrin.

Consequently, Perrin teaches away from the combination of "elongate" and "arranged in a line in the extending direction," as recited in claim 1.

Thus, Applicants submit claim 1 is allowable for this additional reason. Additionally, because claims 4, 11 and 27 recite similar features, Applicants submit these claims are allowable for the same reasons set forth above. Additionally, Applicants submit claims 2-3, 5-6 and 12 are allowable, at least by virtue of their dependency.

Inadequate Official Notice

Additionally, the Examiner relied on Official Notice that it is common knowledge to arrange electrodes in the length-wise direction for the purpose to extend the electrodes or objects. In response Applicants submit the Examiner use of official notice here is improper. Specifically, because the Examiner has failed to provide the required reasoning, the Official Notice is improper.

Applicants continue to submit the Examiner's Official Notice is improper.

Specifically, MPEP § 2144.03 (B) requires that, "if Official Notice is taken of a fact unsupported by documentary evidence, the Examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge." In the Non-Final Office Action, the Examiner merely concluded, absent any reasoning, it is common knowledge to arrange electrodes in the lengthwise direction. Accordingly, because the Examiner failed to provide the required reasoning, Applicants submit the Official Notice is improper.

Accordingly, because the Examiner failed to provide any specific reasoning to support the Official Notice and Applicants noted these deficiencies in the prior response, this Official Notice

should not be construed as admitted prior art. Moreover, because the Examiner failed to provide any specific reasoning, the Applicants were not in position to set forth specific reasons as to why the Official Notice would not be common knowledge. However, the Examiner has taken the position that Applicants were under a burden to show why this unsupported conclusion was not common knowledge. In response, Applicants respectfully note that because the Examiner did not meet his burden in establishing Official Notice, the Applicants could not be fairly required to provide statements as to why this is not well known.

Claim Rejections - 35 U.S.C. § 103(a)

Claims 7-10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Perrin in view of Okui, further in view of Koga et al. (US 6,518,990). This rejection should be traversed for at least the following reasons.

In response, Applicants submit that because Koga fails to compensate for the above noted deficiencies of the Perrin / Okui combination as applied to claims 1 and 4, claims 7-10 are allowable, at least by virtue of their dependencies.

Additionally, Applicants submit that one of ordinary skill in the art would not modify either Perrin or Okui based on the electrodes of Koga. In particular, the electrodes 3b of Koga do not function to form plasma, but rather are in contact with a late image carrier 2 to write an electrostatic image. Consequently, in view of the different functions performed by the electrodes in Perrin as compared with the electrodes of Koga, the Examiner's reasons to combined which suggested one of skill would incorporate Koga's electrode array into Perrin's plasma reactor is wholly unsupportable. Specifically, because Koga's electrodes are used for a different purpose,

one of ordinary skill in the art would not find the requisite likelihood of success required to make such a combination. Specifically, Koga fails to provide any guidance with respect to the use of electrodes in an RF-plasma reactor.

In this Final Office Action, the Examiner contends:

Furthermore, it has been held that changes in shape is
prima facie obvious, see MPEP 2144.04 B.
(*Office Action*, p. 15-16; *citing* In re Dailey, 149 USPQ 1966).

In response, Applicants submit that the recitations of claim 7 are not just mere changes in shape that would be obvious modifications to one of ordinary skill in the art. Specifically, claim 7 recites, “wherein said first surface and second surface form an obtuse angle and said third surface and fourth surface form an acute angle, said in-row gap being in a slantwise relation with said row-to-row gap.” Further, as disclosed in the present specification, in view of this specific configuration the “discharge can more easily be occurred at the corner part on the obtuse angle side formed between the first surface and the second surface and processing omission can be prevented from occurring more reliably.” (par. [0028] of US Pub. 2006/0185594 (present application)).

Accordingly, Applicants submit that this is not just a mere obvious change in shape, but rather, a change that provides unexpected results.

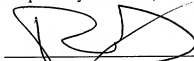
Thus, Applicants submit that, in view of these unexpected results, it would NOT be obvious to modify Perrin and Okui as alleged to the Examiner to arrive at the features of claim 7. Thus, Applicants submit claim 7 is allowable for at least this reason. Additionally, Applicants submit claims 8-10 are allowable, at least by virtue of their dependency.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'David P. Emery', is written over a horizontal line.

David P. Emery
Registration No. 55,154

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: September 2, 2008